tral tegmental area (below the thalamus) and the posterolateral hypothalamus, and then reaches the frontobasal region; this path uses the basal forebrain bundle.
Prospective.– The knowledge of structures controlling conscious behaviours can enable to better understand different types of severe and chronic consciousness disorders. This also could allow proposing adjusted therapeutic options including physical medicine, rehabilitation, pharmacology and neuromodulation.

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Apathy and impulsivity after traumatic brain injury

A. Arnould[a,*], L. Rochat[b], P. Azouvi[c], M. Van Der Linden[b]
[a] *Service de médecine physique et de réadaptation, hôpital Raymond-Poincaré, 104, boulevard Raymond-Poincaré, 92380 Garches, France*
[b] *Unité de psychopathologie et neuropsychologie cognitive, université de Genève, Geneva, Switzerland*
[c] *Service de MPR, hôpital Raymond-Poincaré, Garches, France*

*Corresponding author.

Keywords: Apathy; Impulsivity; Psychosocial reintegration; Traumatic brain injury

Introduction.– Apathy and impulsivity are two disorders frequently encountered after severe traumatic brain injury (TBI). However, there has been little research on the underlying nature of these behavioural modifications.
Objective.– To assess components of apathy and impulsivity after TBI, their psychosocial consequences, and the burden experienced by the relatives.
Method.– 38 close relatives of severe TBI patients were asked to complete four questionnaires: the UPPS impulsivity scale, short version [1], the apathy inventory [2], the Sydney psychosocial reintegration scale [3] and the Zarit Burden Inventory [4].
Results.– TBI patients showed on the UPPS significantly higher levels of urgency, lack of premeditation, and lack of perseverance, and a significant decrease of sensation seeking, as compared with their pre-injury status ($P < .05$). Apathic symptoms were reported, concerning the three dimensions of apathy. Psychosocial problems, and the relatives' burden both significantly and positively correlated with loss of initiative ($P < .01$) and with all dimensions of impulsivity ($P < .05$), except with sensation seeking. A positive significant correlation was found between lack of perseverance on the one hand and lack of initiative ($P < .01$) and loss of interest ($P < .05$).
Discussion.– TBI patients showed, in comparison with pre-injury, a significant increase of both impulsivity and apathy. These modifications were significantly correlated with psychosocial problems and the relatives' burden. The underlying cognitive and motivational bases of these changes need to be further studied.
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Treatment of apathy with Zolpidem (Stilnox®): Two double-blind, placebo-controlled single case studies

S. Mathieu[a,*], K. Autret[b], A. Arnould[a], C. Travers[a], S. Charveriat[a], C. Vandenhelsken[a], G. Jegousse[a], F. Genet[a], P. Azouvi[a]
[a] *Hôpital Raymond-Poincaré, MPR Pr-Azouvi, 104, boulevard Raymond-Poincaré, 92380 Garches, France*
[b] *Centre Saint-Helier, Rennes, France*

*Corresponding author.

Keywords: Zolpidem; Apathy; Brain injury; Evaluation; Double blind

Introduction.– There is to date no recognized treatment of apathy secondary to brain injury. There have been several reports of its paradoxical effect in patients with brain pathologies, showing transient but reproducible improvement in aphasia or arousal of minimally conscious patients [1]. Functional neuro-imaging revealed an improvement of regional brain perfusion.
We report here the effect of zolpidem on apathy in 2 patients with brain injury. Effects were evaluated in double-blind, placebo-controlled design, using behavioral scales and neuropsychological tests.
Case description.– 1: 46-year-old man, 2 years after a severe right hemorrhagic stroke, showing: left spatial neglect, dysexecutive syndrome, attention disorders, incapacitating fatigability and apathy. Zolpidem allowed behavioral improvement, as shown with the Apathy Inventory, and the Inventory of behavioral dysexecutive syndrome, but without any modification of neuropsychological testing.
2: 35-year-old woman, 12 months after an anoxic encephalopathy, showing: minimally conscious state with very limited verbal and motor activity. Zolpidem allowed a behavioral improvement, as evidenced by the Coma Recovery Scale Revised, but no increase in cognitive performances.
Discussion.– In both cases presented, the paradoxical effect of zolpidem was very beneficial in terms of behavior, especially allowing arousal and taking initiative and leading to greater participation in daily life activities and interaction with the environment. There was, however, no significant effect on cognitive testing. These effects should be further investigated in a larger sample of brain injured patients.
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Ecological assessment of cognitive functions in children with acquired brain injury: A systematic review

M. Chevignard[a,*], C. Soo[b], J. Galvin[b], C. Catroppa[b], S. Eren[b]
[a] *Service de rééducation des pathologies neurologiques acquises de l'enfant, pôle de rééducation et de réadaptation de l'enfant, hôpitaux de Saint-Maurice, 14, rue du Val d'Osne, 94410 Saint-Maurice, France*
[b] *Murdoch Childrens Research Institute, Melbourne, Australia*

*Corresponding author.

Keywords: Acquired brain injury; Child; Assessment; Cognitive; Ecological

Childhood acquired brain injury (ABI) often leads to impairment in cognitive functioning, resulting in disabilities in both the home and school environment. Assessing the impact of these cognitive deficits in everyday life using traditional neuropsychological tests has been limiting. The aims of this review were to (i) systematically review the literature in order to identify existing ecological assessments of cognitive functioning that have been used in childhood ABI; (ii) describe the identified measures in terms of their psychometric properties, clinical utility and overall advantages and disadvantages.
Method.– Eight databases were searched (until May 2010) for scales (tests or questionnaires) which are:
– focused on ecological assessment of cognitive functioning;
– applicable to children up to18 years of age;
– with published data in an ABI population;
– in English. The title and abstract of all papers were reviewed independently by two reviewers.
Results.– Database searches yielded a total of 12,475 references, of which 15 scales met the inclusion criteria for the review, focusing on executive functions ($n = 8$), memory ($n = 2$), general cognitive abilities ($n = 2$), visuospatial skills ($n = 2$) and attention ($n = 1$). The tasks consisted of four tasks using observation of actual performance in a natural environment, five questionnaires and six functional "paper and pencil" type tasks, developed with ecological validity in mind. While all tests had some information on their psychometric properties, there was a lack of information in many cases. However, discriminant validity

was most often good, as all the scales successfully discriminated children with ABI from matched typically developing children.
Discussion.– Overall, few measures were found; eight were still experimental tasks which did not provide manuals or norms, including all four tasks using observation of actual performance in a natural environment. Executive functions were better represented in ecological assessments, with relatively more standardised scales available. Further studies are needed, to validate the tasks that are still experimental, and to better evaluate the usefulness of most scales for assessing children with various acquired brain conditions.
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Assessment of executive functions in children diagnosed with a developmental dyspraxia: Comparison of conventional neuropsychological approach and a more ecological approach

M. Toussaint-Thorin[a,*], F. Marchal[b], P. Pradat-Diehl[c], M. Chevignard[b]
[a] *SESSD Douai, 167, allée Albert-Camus, 59500 Douai, France*
[b] *Hôpital national de Saint-Maurice, Saint-Maurice, France*
[c] *Groupe hospitalier Salpêtrière, Paris, France*

*Corresponding author.

Keywords: Developmental dyspraxia; Developmental coordination disorder; Executive functions; Ecological task

Introduction.– The various cognitive models of developmental dyspraxia (DD) are still very controversial (role of perceptive analysis disorders, planning, mental representation, gesture programming). Yet, executive functions play a major role in the child's cognitive development.
Objective.– To assess executive functions in children diagnosed DD, using a combination of standardized paper-and-pencil neuropsychological tests and ecological tests.
Methods.– Inclusion criteria: children aged 8 years to 12 years 5 months at the time of the study, for who DD had been diagnosed between January 2008 and August 2009. Exclusion criteria: verbal IQ < 70 and dyslexia.
Assessment tools.– Paper-and-pencil neuropsychological tests (Trail Making Test; subtests of the NEPSY: tower, auditive attention, verbal fluency; Marquet-Doléac test of matching images); more ecological "paper-pencil" tests (Six Part Test, 2 sub-tests of the Rivermead Behavioural Memory Test), 2 dysexecutive questionnaires answered by the parents: the Behavior Rating Inventory of Executive Function and the Dysexecutive Questionnaire for Children, and finally an ecological task performed in an open-ended environment: the Children's Cooking Task (CCT) (Chevignard et al. 2009). In the CCT, children were compared with matched controls.
Results.– 13 children participated (11 boys; mean age 10.3 years). In the neuropsychological tests, the group exhibited slow processing speed and impaired performance in visual-spatial tasks, which was expected. Impaired planning and inhibition were found, whereas flexibility was within the normal range. Questionnaires highlighted executive disorders in everyday life in more half of the sample. Finally the results of the CCT were highly significantly impaired, with patients exhibiting significantly more errors than matched controls (P = 0,000).
Discussion and conclusion.– The assessments used in this study consistently suggest that children with DD suffer executive functions disorders. The ecological tests seem to be more sensitive to a dysexecutive syndrome than the conventional tests, as previously known in adults or children with acquired brain injuries.

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Impact of early information of close relative about communication with an aphasic patient: InfoCom study

S. Bodin, K. Labrunée-Prod'homme, I. Delort-Albrespit, E. Castel-Lacanal, M. Labrunée, P. Marque, X. De Boissezon*
Médecine physqiue et de réadaptation, CHU de Toulouse, hôpital Rangueil, TSA 50032, 31059 Toulouse, France

*Corresponding author.

Keywords: Aphasia; Information; Communication; Stroke

Objective.– To reduce communication impairment in post-stroke aphasic patients via post-acute information about aphasia and communication skills.
Material, patients and methods.– The InfoCom booklet contains general information about aphasia, verbal and non-verbal communications skills, but also customised pages according to preserved communication skills of the patient and advice to improve his/her expression or comprehension. Ten left hemisphere stroke patients (Booklet Group–BG), with impaired communication abilities underwent an assessment of language deficiency (Montreal-Toulouse-1986) and communication skills (Test Lillois de Communication–TLC and Protocole Toulousain d'Evaluation de la Communication au sein du Couple Aphasique-PTECCA) twice: in the first month (T0) and third month (T1) post-onset. The booklet was given with customised advice after the first assessment (T0). Results were compared with assessment of a Control Group (CG) at 3-month post-onset (T1) without any early specific information.
Results.– In BG, improvements from T0 to T1 were significant for language deficiency and communication skills, mainly due to natural recovery and cerebral plasticity after stroke. Inter-group comparison at T1 revealed significantly better communication (TLC and PTECCA) in BG compared with CG, without any difference in term of language deficiency. Booklets had been appreciated by relatives as well as speech and language therapists caring for patients of the BG.
Discussion.– This study demonstrates the utility of early information about communication impairment for aphasic patients. This information, especially about non-verbal communication skills, significantly improves communication between patient and close relative. This communication information should not be given in a late stage to patients after bad recovery of linguistic deficiency.

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Communication impairment in daily living in stroke patients with aphasia

T. Lagadec[a], D. Zongo[b], J. Asselineau[b], E. Douce[c], J. Trias[d], M.F. Delair[e], M. Michot[e], B. Darrigrand[f], J.-M. Mazaux[g,*]
[a] *EA 4136, université Bordeaux-Segalen, hôpital IA–Robert-Picqué, Bordeaux, France*
[b] *ISPED, université Bordeaux-Segalen, Bordeaux, France*
[c] *Hôpital Nouvielle, Mont-de-Marsan, France*
[d] *Hôpital Robert-Boulin, Libourne, France*
[e] *Centre hospitalier universitaire de Bordeaux, Bordeaux, France*
[f] *EA 4136, université Bordeaux-Segalen, hôpital Robert-Boulin, Libourne, Bordeaux et Libourne, France*
[g] *EA 4136, université Bordeaux-Segalen, CHU de Bordeaux, Bordeaux, France*

*Corresponding author.

Keywords: Aphasia; Communication; Recovery; Prognosis

Although aphasia has been largely studied as a linguistic impairment, little is known about the communication activity limitation that aphasic patients may suffer in daily living.
Aims.– Providing further information about communication activity in stroke patients with aphasia.
Patients and methods.– Prospective, multicentric cohort study of patients with aphasia consecutively included after a first documented stroke. Patients were examined within the first month post-stroke, then 12 to 18 months later at their homes. Assessment included 2 stroke severity scale: the Orgogozo score (OS) and the Barthel Index (BI), a comprehensive and well-known aphasia battery, the BDAE, a communication questionnaire, the ECVB, and a depression scale designed for aphasic patients, the ADRS.
Results.– One hundred and sixty four patients were included. At the date of follow-up, 34 were dead, 19 were lost for follow-up and 11 refused the second assessment. Among the 100 others, 24% suffered a severe aphasia (BDAE severity score 0, 1 and 2), 12% a moderate (BDAE score 3) and 64% a mild aphasia (score 4 and 5) at follow-up. The mean communication score was 64 ± 32 on the ECVB. Talking the first especially with unknown persons, conversation on abstract topics, using a phone, reading and writing administrative documents,